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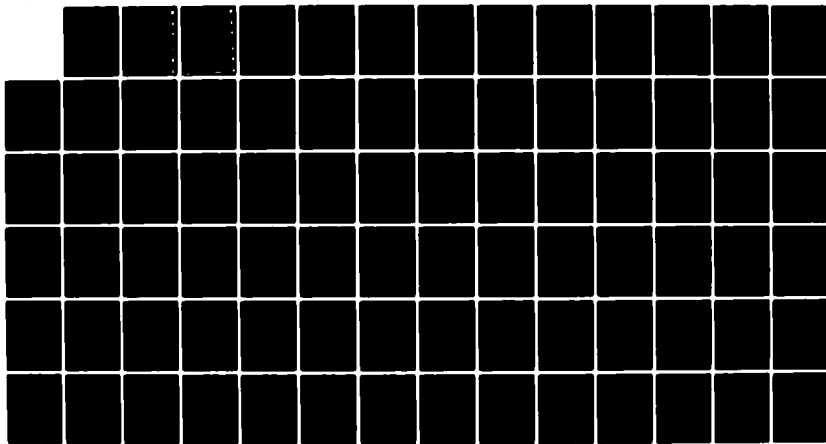
INCREASING COMPETITION FOR SPARES WITHIN AFLC REVISION
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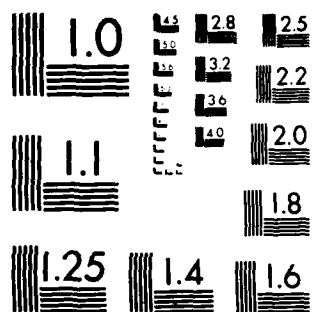
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INCREASING COMPETITION FOR
SPARES WITHIN AFLC
PHASE 2 REPORT

30 November 1982

Revised: 5 January 1983

Submitted to:

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United States Air Force
Business Research Management Center
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Contract No. F33615-82-C-5095

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SUMMARY

This technical report describes the efforts accomplished by Analytics under Phase 2 of Contract F33615-82-C-5095 and the preliminary conclusions which may be drawn from these efforts. It covers the period 21 October through 30 November 1982 and conforms to the approach outlined in the Study Plan, Analytics' Technical Memorandum 1808-TR-01, 30 September 1982.

This report summarizes the literature search, provides a selected bibliography, and summarizes the interviews conducted with key personnel of the Air Staff, ASD, ALD, the ALCs, Defense Audit Service, and Air Force Audit Agency.

Based upon information obtained from this effort, 13 hypotheses were developed for further study in Phase 3, together with an experimental plan to evaluate them.

Finally, four major systems and two less than major systems are suggested for consideration by AFBRMC in selecting two systems for detailed review in Phase 3 of this study effort.



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1. INTRODUCTION

This technical report provides a description of the efforts accomplished by Analytics under Phase 2 of Contract F33615-82-C-5095 and the preliminary conclusions which may be drawn based on these efforts. It covers the period 21 October through 30 November 1982 and conforms to the approach to problem attack described in Analytics' Technical Memorandum 1808-TR-01, Increasing Spares Competition Within AFLC - Study Plan.

The overall focus of the research effort under the contract is to identify specific actions which may be taken by the Air Force to increase the extent of competition in the purchase of spare parts for major weapon systems. The current Phase of the research effort has focused on the gathering and evaluation of data through literature search and interviews, to determine the current procedures, the proposed changes, and the data available to support in-depth study at the Air Logistics Centers. The result of each of these inquiries is described below. Analytics also identified, based on the data evaluated, specific research hypotheses which are to be evaluated during Phase 3 of this contract. The hypotheses and experimental plans are discussed below.

As a result of our inquiry to date, it is apparent that there are two specific but fundamentally different issues which need to be addressed. The first issue involves identification of systemic changes which need to be made to effect a long range cure for the causes of the problem. The second issue is to develop recommendations for near term actions which could be used to increase the competitive posture on systems currently being supported by AFLC or forecast for near term transition to AFLC. The research effort in Phase 3 will deal with both of these issues. While certain preliminary measures of the problems have been obtained, more specific quantitative measures need to be developed in Phase 3.



2. LITERATURE REVIEW

2.1 SCOPE

During Phase 2 of this research effort, we reviewed a wide range of literature on competition and the related issues of policy, legal aspects, data and rights to data, contracting practices, and studies and audits conducted to assess the execution of competition objectives.

The literature search included screening the assets of the Defense Technical Information Center (DTIC), the Defense Logistics Studies Information Exchange (DLSIE), and the Library of the Defense Systems Management College. From the large volume of literature reviewed, we have included a Selected Bibliography of the more relevant references in Appendix C. An Annotated Bibliography describing the references has been prepared as a separate volume (Analytics' Technical Report 1808-TR-03). The Annotated Bibliography includes a summary of each document cited. A list of the most relevant DoD Publications, Regulations, Manuals, Pamphlets, Military Specifications and Standards, and AFALD Lessons Learned is shown in Appendix D.

To establish a perspective, we also reviewed reports and statistics on the Air Force's current competitive posture. These included:

1. Semi-Annual Report, Spare Parts Procurement Reporting System (DD-I&L(Q)714).
2. Monthly 57-6 Report, PMC/AMOP Mismatch Report (AFLC Form J041-4TK-M2-M20).
3. Quarterly IMSS-11*, Procurement Method/Procurement Method Suffix Codes (RCS: DLA(Q)1739-11(S). From this report we prepared a PMC Suffix Code Distribution (%) Sheet for the Air Force and for each Air Logistics Center. These are shown in Appendix E and are the basis for Figures 4-1, 4-2, and 4-3.

*IMSS is the abbreviation of a DLSC Automated System (Integrated Materiel Support System) and has no significance except as a product identifier.



4. Quarterly Report, Spare Parts Procurement Reporting System (DD-I&L(Q)714).

Finally, we reviewed the final draft of Air Force Regulation 800-34, Acquisition Management-Engineering Data Acquisition, which should be published in the near future.

2.2 COMPETITION AS NATIONAL AND DOD POLICY

From the beginnings of United States history, Congress has shown a strong interest in the use of competitive procurement to obtain lower prices and to prevent procurement abuses. The Procurement Act of 1809 established a general requirement that formal advertising be used in the procurement of supplies and services for the government of the United States. Competitive bidding (formal advertising) served the federal government effectively for over 100 years, but increasing technological complexity and greatly increased volume of purchases led to widespread substitution of negotiated purchasing by the beginnings of World War II.

After World War II, Congress passed the Armed Forces Procurement Act of 1947, which formally recognized that negotiated procurement is a required method of purchasing in peacetime as well as wartime in certain cases. The Act permits purchases to be negotiated when certain conditions or "exceptions" (17 in number) exist. The Act states that all procurement will be made by formal advertising unless one of the 17 exceptions permits negotiation.

Long-standing concern over the process of acquiring major systems led to the issuance of OMB Circular No. A-109, "Major System Acquisitions," 5 April 1976, addressed to the Heads of Executive Departments and Establishments. The Circular established management objectives, one of which is to tailor an acquisition strategy for each program, including, "Methods for obtaining and sustaining competition."



Further efforts to improve the effectiveness of the management of major system acquisitions were reflected in Deputy Secretary of Defense Frank C. Carlucci's Memorandum for Secretaries of the Military Departments, subject: "Improving the Acquisition Process," 30 April 1981. This Memorandum contains 32 initiatives, the last of which was to, "Increase Competition in Acquisition by Establishing Management Programs and Setting Objectives." This was reinforced by Mr. Carlucci in a Memorandum for Secretaries of the Military Departments, subject: "Increasing Competition in the Acquisition Process," 27 July 1981.

On 10 November 1981, the Undersecretary of Defense for Research and Engineering sent a Memorandum To Secretaries of the Military Departments, subject: "Increasing Competition in the Acquisition Process." Among other provisions, the Memorandum directed the Secretaries to:

- Designate advocates for competition at each procuring activity who are responsible for ensuring that competition opportunities are not lost.
- Establish realistic but challenging competition goals.

On 29 March 1982, DoD Directive 5000.1, "Major System Acquisitions," was reissued to reflect the Acquisition Improvement Program and to implement the concepts and provisions of OMB Circular A-109. Other DoD Directives and Instructions which flow from DoD Directive 5000.1 are under revision accordingly (principally DoD Directive 5000.2, "Major System Acquisition Procedures," 18 January 1982 (Draft)).

More recently, the Secretary of Defense sent a Memorandum to the Secretaries of the Military Departments, the Chairman of the Joint Chiefs of Staff, and other DoD activities, subject: "Competitive Procurement," 9 September 1982. This Memorandum emphasized that the benefits derived from competition include cost reduction, quality improvement, and enhancement of the industrial base. It also states that, "No type of purchase is automatically excluded from this direction to maximize competition and this direction applies regardless of the level of the requesting official or the importance of the subject matter of the contract."



In response, the Under Secretary of Defense (Research and Engineering) sent a Memorandum to the Assistant Secretary of Defense (MRA and L), the Assistant Secretaries of the Services, and the Director of the Defense Logistics Agency, subject: "Competitive Procurement of Spare Parts," 19 October 1982. This Memorandum established the Defense Procurement/Data Steering Group to "study the critical issues, to examine present policies, procedures, and resource allocations." The Group will, "Recommend measures to improve our procurement of spare parts and to restructure our acquisition and use of data."

2.3 DATA ACQUISITION AND MANAGEMENT

The above Memorandum explicitly recognizes the relationship between competitive procurement of spare parts and the acquisition and use of reprourement data. The relationship among the more relevant Military Specifications, Military Standards, Air Force Regulations and Pamphlets dealing with the acquisition and use of data is described below.

MIL-STD-490, "Specification Practices," 30 October 1968, establishes the format and content of system specifications, which, together with drawings, form the basis for a Technical Data Package (TDP) which can be used for competitive procurement. Type C Product Specifications are defined as specifications used in the production of a prime item of equipment and are essentially sufficient to serve as a TDP. Specifically, Type Clb, Prime Item Product Fabrication Specification contains all the information needed for competitive reprourement when combined with the engineering drawings and associated lists.

DoD-1000B, "Drawings, Engineering and Associated Lists," 31 October 1980, is the specification which defines different levels of drawings progressing from system inception to production. Level 3 drawings provide engineering data for quantity production of an end item of equipment



and for competitive reprocurement of spare parts substantially identical to the original items. If Level 3 drawings are specified in the contract and delivered with acceptable quality and unrestricted rights, the Air Force should have sufficient data to reprocure competitively.

MIL-STD-1388-1 and MIL-STD-1388-2, "Logistic Support Analysis," 15 October 1973, establishes criteria for the development of a Logistic Support Analysis (LSA), as part of the engineering process, to define system support requirements and to inject support criteria into system/equipment design and acquisition. The LSA is intended to be the integrating document for the processes of provisioning spare parts, Procurement Method Coding, and data acquisition.

Air Force Regulation 57-6, "High Dollar Spare Parts Breakout Program," March 1969, is a Joint Regulation establishing, for the Department of Defense, uniform policies and procedures relating specifically to procurement of spares and repair parts for use in the maintenance, overhaul, and repair of equipment and systems. The process is described below in general terms.

During the provisioning process, decisions are made reflecting the Maintenance Concept, including what spare parts will be specified, and what spare parts new to the inventory must be identified and purchased to meet initial support requirements. After identification of what spare parts are required for the Maintenance Concept, decisions also must be made as to how they will be procured in terms of competitive posture. The intent of the High Value Spare Parts Breakout Program is to identify those high dollar spare parts which offer the greatest potential savings through competitive procurement or "breakout." High Dollar Value Replenishment Spare Parts are defined as spare parts included in those items ranked in descending order of annual buy value (computed by multiplying the unit price times the annual buy quantity) which represent at least eighty percent (80%) of all dollars expected to be spent in the 12-month period when measured in descending order from the highest annual buy value item.



Usually, the contractor is asked (required by the contract) to recommend the method of procurement through the use of numeric Contractor Recommended Codes (CRC) and Suffix Codes to indicate the basis for the assignment of the numeric code. Upon concurrence by the Air Force, each screened item is assigned a Procurement Method Code (PMC) and PMC Suffix Code, which determine how the item will be purchased unless changed by subsequent review. These codes are defined in Appendix A.

In the regulation, methods are presented for computing expected savings from breakout as part of the full screening decision process.

AFLC/AFSC Supplement 1 to AFR 57-6, 12 October 1976, requires that AFLC activities will establish an AFR 57-6 Program Manager.

Air Force Regulation 310-1, "Management of Contractor Data," AFSC Regulation 310-1, same subject, 11 March 1974, and ASDM 310-1, "Acquisition and Management of Data for Procurement," 1 February 1973, establish and implement the Air Force program for managing data acquired from industry, provide implementing procedures for DoD Instruction 5010.12, "Management of Technical Data," December 1968, and outline the complete ASD Procurement Data Management Program, respectively.

AFLC/AFSC Pamphlet 800-34, "Acquisition Logistics Management," 12 August 1981, is a basic reference book for acquisition logistics matters within AFLC and AFSC. It primarily helps the program manager (PM) and the Integrated Logistics Support Office (ILSO) identify schedule, and accomplish or cause to be accomplished the key logistics tasks needed for the logistics support of acquisition programs. It also has guidance which will aid the other organizations within the program office and AFLC/AFSC field units in understanding the role of the ILSO as well as their roles and interfaces relative to the ILSO's functions and responsibilities.



Chapter 25, Engineering Data is an excellent presentation of how to get adequate, accurate, and complete engineering data needed for the government's use in maintenance, engineering, modification, repro- curement, and other support data. Being a pamphlet, its only short- coming is that it does not have the force of a regulation. This will soon be overcome by Air Force Regulation 800-34, "Engineering Data Acquisition," to be published in the near future. Among other pro- visions, this new regulation will require that the program manager ensure that the procuring contract officer (PCO) includes the "Predetermination of Rights in Technical Data" clause (DAR 7-2003.61) in solicitations and the "Notice of Certain Limited Rights" clause (DAR 7-104.9(b)) in both solicitations and contracts. These clauses require the contractor to notify the PCO when the contractor or any subcontractor, vendor, or supplier to the contractor intends to use any item having data subject to limited rights. It also requires that claims of data subject to limited rights be resolved promptly, and if necessary, be acquired while competition still exists among alternative contractors.

2.4 CONCLUSIONS

Summaries of cited references are included in the Annotated Bibliography and will not be repeated here. The same general themes pervade the literature from all sources and conclusions are summarized here.

Increased competition is a national policy and objective as espoused by the President, the Secretary of Defense, and Congress. The objective is multi-dimensional, including considerations of price, quality, industrial base, and socio-economic programs.

The ability to repro- cure spares competitively after transition of a system from AFSC to AFLC is determined early in the system acqui- sition process, and is a function of the specific contract clauses and terms included in system acquisition contracts.



Despite the general agreement that competitive reprocurement is beneficial, the realities of relative priorities, funds constraints, personnel motivational factors, and legal problems often prevent the front-end actions being taken to permit successful reprocurement during the Operation and Support Phase.

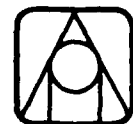
Even when there are the best intentions on everyone's part, there is a certain amount of ambiguity or confusion in several areas, including:

- a. Policy, regulations, and procedures.
- b. Specific responsibility and accountability.
- c. Inconsistency in definitions and terms relating to data among equally authoritative publications.
- d. Application of appropriate DAR clauses and subsequent resolution of disputes.
- e. Procedures for acquiring missing or inadequate data by the ALCs long after the original contracts have terminated.

GAO, DAS, and AFAA studies and audits are generally critical of competitive posture and breakout efforts, but generally do not attack the problem at the front end, where the seeds are sown for downstream problems.

The principal PMC Suffix Codes which inhibit competitive reprocurement are:

- C Procurement from approved source
- D The data not available
- H Inadequate data
- P Rights to use data legally not available



3. INTERVIEWS

3.1 SCOPE

During Phase 2, we conducted interviews with key personnel involved with acquisition management policy, the breakout process, management and use of technical and reprourement data. A list of persons interviewed is shown in Appendix F.

In order to achieve interactive dialog and conserve TDY funds, we interviewed personnel of the Air Logistics Centers (ALCs) using the Air Force Institute of Technology's Teleteach System. The Teleteach Agenda Topics are shown in Appendix G. Special emphasis was given to the specific questions in paragraph 9, Appendix G.

We also conducted interviews with Air Staff personnel (LEYE and RDCL). A protocol for these interviews is shown in Appendix H.

Other interviews were less structured, but adhered to the same general topics.

3.2 SUMMARY

To avoid repetition and to provide nonattribution to specific persons, the principal comments obtained during the interviews are summarized below. With few exceptions the comments were consistent and mutually supportive and were consistent with the conclusions drawn from the literature search.

3.2.1 Policy and Management Planning

Although there are a variety of Directives, Regulations, Pamphlets, the Defense Acquisition Regulations, etc., there is no single vehicle which ties the whole data management process together throughout the acquisition process, nor one that makes it a closed loop process. Decisions on what data to buy, the specific requirements in



terms of contract clauses, and other decisions which will ultimately affect reprourement or breakout are made early in the acquisition process. At this point in the process, requirements may not be fully known, ALC participation may be limited, and when there are funding constraints, data may be considered a "soft" area, subject to cuts.

The ALCs have to live with downstream consequences of early decisions; therefore there is general agreement that the ALCs should be involved as early as possible in all phases of the process -- contract data requirements, provisioning, and the Procurement Method Coding (PMC) process. In order to accomplish this, there is a requirement for early identification of the supporting ALC, the availability of quantitative and qualitative resources, including adequate TDY funds for meetings and conferences.

All persons interviewed expressed confidence that the new, but unpublished, Air Force Regulation 800-34, Acquisition Management Engineering Data Management, will go a long way toward improving the whole data management process for the following reasons:

- It is a joint AFSC/AFLC regulation, stating what both have agreed to do.
- It is an 800 series regulation, so there is no question that it involves acquisition management.
- If an argument arises about the role, importance or responsibilities of logistics and data management, logistics personnel will have a joint 800 series regulation to hold forth.

It is recognized that the effects of AFR 800-34 will not really be felt for several years. But AFALD is now insisting on having its voice heard and is assuring that a Pre-Delivery Data Requirements List be included in contracts to serve as a due-in assets list for intended recipients.



3.2.2 Data Management

Our interviews were unable to find any audit trail to review provisioning decisions, CRC/PMC decisions, or questions involving rights in data which become an issue when the ALCs encounter problems in break-out or reprocurement. Contracts may have been completed and retired to archives, PMC and provisioning decisions are not documented or available. If a drawing is marked "Restricted," there is usually no basis to challenge it.

Definition and terminology are also data management problems. There is confusion between the "Form and Category" system used in MIL-D-1000 (1965) which was replaced with the "Level" system of DoD-D-1000B (1977), (see Appendix I for definitions). Often, the contract or amendments to the contract contain mixed requirements, in which the Statement of Work may call for preparation of drawings and associated tasks to a "Level 3," while the Contract Data Requirements List calls for a "Form and Category," either directly or by citing an obsolete Data Item Description. It is generally agreed that we should buy Level 3 data which, by definition, is "to provide engineering data for support of quantity production of the end product to permit competitive procurement for items substantially identical to original items." These data, together with other related documentation should be usable for most purposes, including competitive reprocurement.

Under the previous "Category" system, data was often ordered by and for logistics support (Category D), procurement (Category E), maintenance (Category H), etc. When deferred ordering of data was specified, these data (in some cases identical) could well be ordered, delivered, and paid for more than once. With "Level 3" data specified, it should fit the needs of all users and be available for the cost of reproduction and administrative processing. When deferred ordering of data is not specified, it is often difficult to identify the cost of data buried in the overall contract costs. As additional evidence of the potential confusion among knowledgeable data

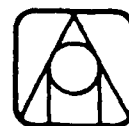


personnel, Sacramento ALC recently sent a letter to AFALD asking for a definition of Level 3 data. It appears that ambiguities in definitions and terminology contribute to the general problem of data management.

3.2.3 Rights in Data

Interviews confirmed that PMC Suffix Codes C, D, H, and P predominate. These will serve as a basis for further study. The current DAR contract clauses, especially, "Predetermination of Rights in Technical Data," (DAR 7-2003.61) and, "Notice of Certain Limited Rights," (DAR 7-104.9(b)) are adequate to cover rights in data if used correctly and consistently. But it seems difficult to translate perceived requirements into contract terms which produce the desired results. There are some 42 different DAR clauses addressing rights in data. Appropriate clauses may be included in contracts early in the acquisition process. By the time the ALCs want to break out parts for reprourement downstream, the system has been transferred from AFSC to AFLC, and records, contracts, and other historical data may not be available and audit trail is virtually nonexistent. If a drawing is marked "Restricted," there is often no basis for successful challenge. JAGs will normally not pursue a challenge unless there is a clear case, which generally is not so.

In one case cited, the JAG stated that, if an ALC goes back to a prime contractor for missing data, the ALC must state that it is being requested for reprourement purposes. The response from the prime contractor is usually negative.



Again, the whole issue of rights in data and criteria for the technical acceptance of data must be established during the acquisition process. The problem has to be attacked early. It has to be solved sooner or later -- and the later it is addressed, the more difficult and more expensive is the solution.

3.2.4 Economic Analysis

A part of the breakout process in AFR 57-6 and generally accepted management principles require that the expected benefits of competitive reprourement be weighed against the cost to develop a second (or multiple) source.

Studies¹ have shown that the cost of developing new sources, including time and expense of first article development and testing, is often understated.

There does not appear to be an agreed-upon, uniform procedure to calculate savings derived from breakout. Some inconsistencies are:

- Comparing new unit costs to buys which were made several years ago, without taking inflation into account.

¹Department of the Air Force, Component Breakout in Weapon Systems, Acquisition, Washington, D.C.: Air Force Audit Agency (SRA807510), 17 December 1980, (for example).



- Ignoring the effects of small volume purchases or priority buys.
- Comparing new unit costs to standard prices instead of contract costs.
- Applying savings on one buy versus a series of buys.
- Disregarding administrative and technical costs to establish new sources.

ALC personnel involved in the breakout process suggested that, with current pressures to improve competition, they break out whatever they can, without regard to economics. Others said that many items which were not seriously considered for breakout, have suddenly become attractive with inflationary pressures.

In any case, there was no evidence that breakout is subject to uniform and valid economic analysis.

3.2.5 USAF Engineering Data Support Center (AFALD/TPD)

During our interviews, the Engineering Data Support Center, often referred to as, "The Repository," was a subject of discussion. During our visit to the Repository, the following facts were obtained:

- The Repository is primarily a receipt, storage, and issue point for engineering drawings, not only for the ALCs, but for other Services, Foreign Military Sales, DLA, and other customers.
- By mission and manning, the Repository has minimal capability for assessment of technical adequacy or completeness of data. Data is stored in drawing number sequence and each drawing is filed as it is received.
- Currently, all operations are manual, with no capability for automated retrieval.
- There is a program underway to automate the storage records (effective August 1983), but efforts to automate retrieval are a long way off.



- If the Repository is furnished a Pre-Delivery Data Requirements List, it would serve as a due-in asset file, but will not assure that all required data is actually received.
- The Repository furnishes reproducible drawings (aperture cards) to the appropriate ALC "automatically" (if a series of manual, procedure-based actions is taken).
- The whole process is an open-loop, people-dependent system. This observation is not meant to be critical of the Repository Commander or staff -- it is the way the Repository is staffed, organized, and equipped.



4. HYPOTHESES DEVELOPMENT

4.1 PRELIMINARY RESEARCH FINDINGS

Our focus in this research is to identify those impediments to competitive spares acquisition which have major impact on the attained level of spares competition. The current Air Force posture is shown in Figure 4-1. The data portrayed was extracted from the IMSS-11 Procurement Method/Procurement Method Suffix Code Report, RCS: DLA(Q)-1739-11(S) dated 28 March 1982*. Figure 4-1 shows that there is a significant amount of spares being purchased directly from the actual manufacturer, thus avoiding the handling cost of going through the system prime contractor, but that competitive spare acquisition remains at a relatively low percentage. It is important to note that Figure 4-1 is based on a percentage of items, not percentage of dollar value. It is reasonable to expect that many of the PMC 4 and 5 items would include high dollar value items. These items, because of their complexity, may offer the least opportunity for successful breakout to competitive acquisition.

During the process of interviews in Phase 2, the interviewees suggested that data and data rights were the primary impediments to increasing competition. This conclusion is supported by the IMSS-11 report. Figure 4-2 displays the distribution of items which are coded for noncompetitive procurement across the PMC Suffix Codes (See Appendix A for complete definition of PMC and PMC Suffix Codes). The three charts in this figure portray the distribution of items across the major suffix codes. The percentage figures are developed from the IMSS report by deleting items assigned to two suffix codes. The first is PMC Suffix Code G (this item is technically suitable and legally clear for advertising and the data package is complete). The other PMC Suffix Code which is deleted is PMC Suffix Code L (the low dollar value of procurements makes it uneconomical to undertake to improve the procurement

*Latest report available when this report was prepared. Subsequent review of the 31 Dec 82 IMSS-11 report showed insignificant changes.



Procurement Method Codes (PMC)

- PMC 1 Competitive
- PMC 2 Competitive first year
- PMC 3 Direct purchase manufacturer
- PMC 4 Direct purchase from actual manufacturer for first time
- PMC 5 Non-competitive

Air Logistics Centers

- OC - Oklahoma City
- OO - Ogden
- WR - Warner Robins
- SA - San Antonio
- SM - Sacramento

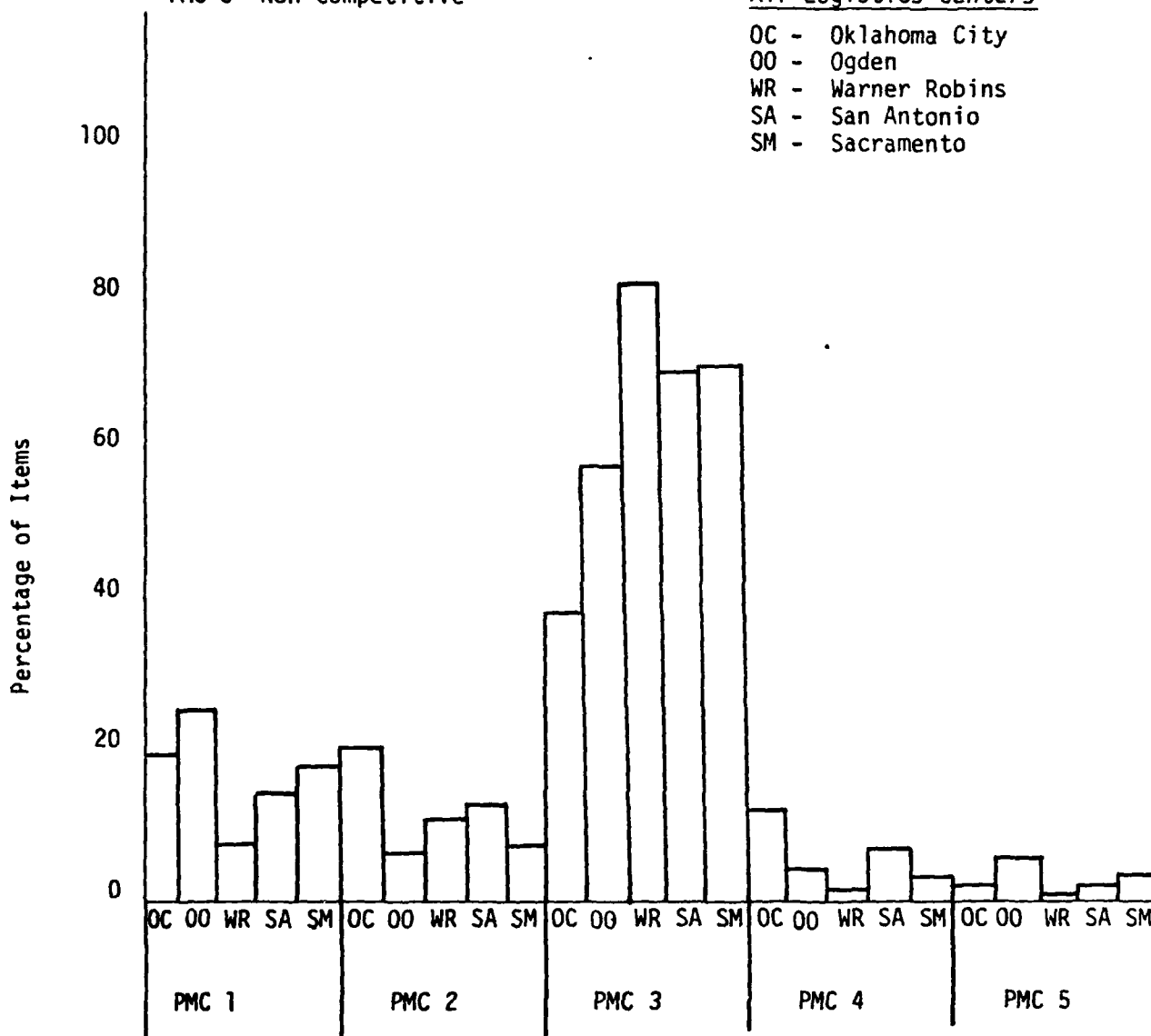


FIGURE 4-1 Relative Distribution of PMC Codes by Air Logistics Center

Source: IMSS-11 Report
28 March 1982*

*Latest report available

PERCENTAGE OF ITEMS WITH PMC SUFFIX CODES OTHER THAN L (LOW DOLLAR VALUE)
AND G (DATA IS TECHNICALLY SUITABLE)

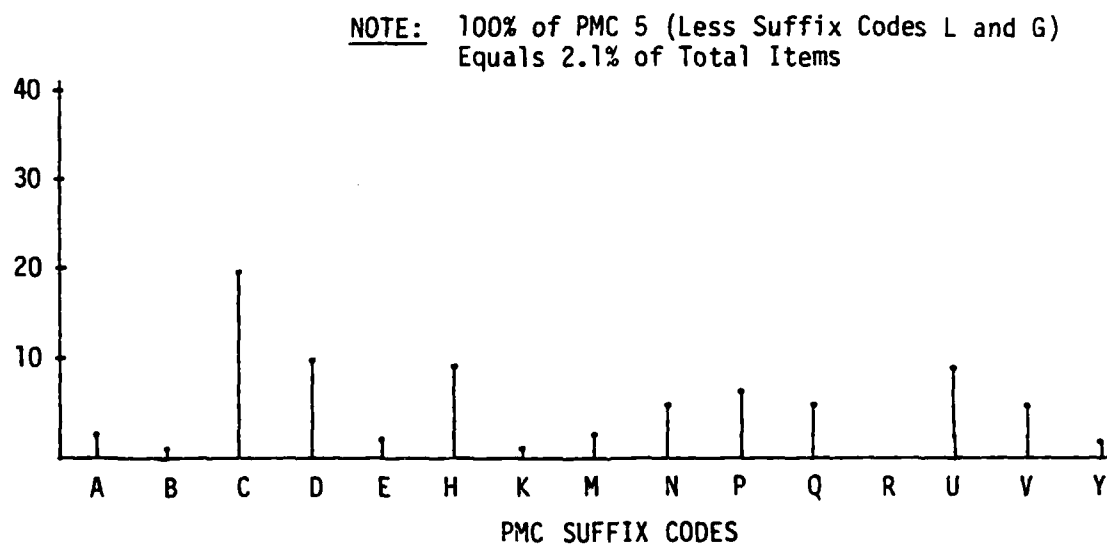
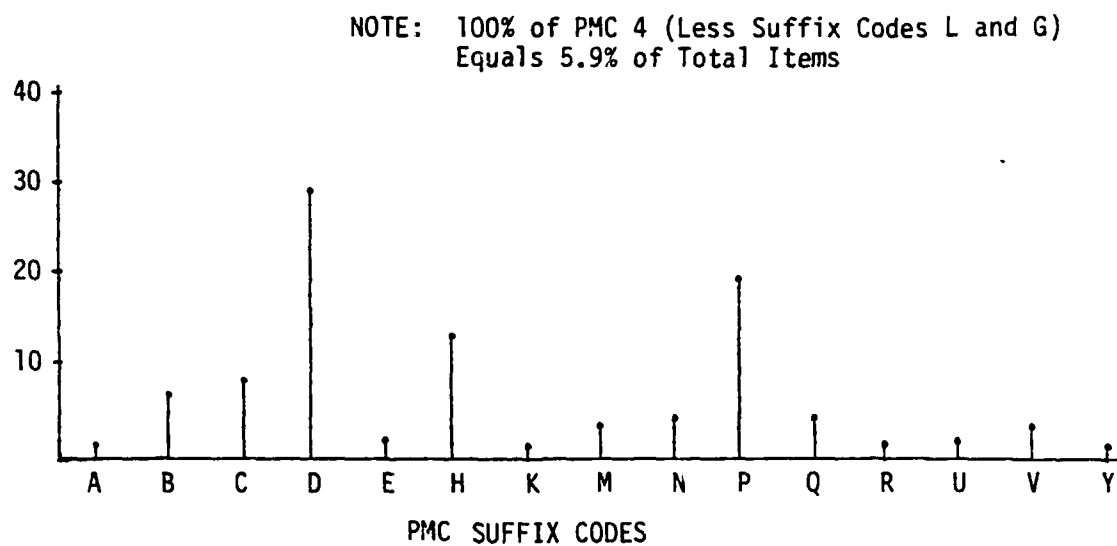
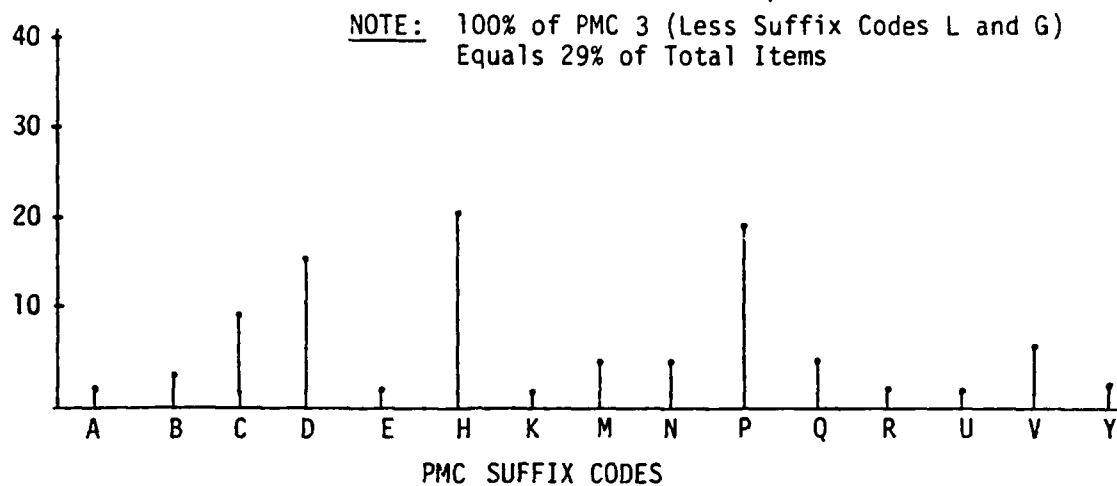


FIGURE 4-2 Distribution of PMC Suffix Codes - Air Force
4-3

status of this item). Interviews with ALC personnel revealed that the criteria for assigning PMC Suffix Code L varies among ALCs. Since the research under this program seeks to identify impediments to the break-out of items which could provide economic benefit to the Air Force, the items in Suffix Code L are not being considered.

The chart for each PMC code displays the percentage distribution of the items in that PMC, excluding Suffix Codes L&G. The chart for PMC 3 displays information covering 29% of the items in the IMSS-11 report. The total percentage of items in PMC 3 is 66% but more than half of them (57.1%) are in Suffix Code L (see Appendix E, page AE-1). PMC 4 contains 5.9% of the total items and PMC 5 contains 2.1% of the items. The discussion in the previous paragraph concerning the lack of correlation between number of items and dollar value is also applicable to Figure 4-2. The dominant suffix codes are:

- C Procurement from approved source
- D The data not available
- H Inadequate data
- P Rights to use data legally not available

Three of these suffix codes, D, H, and P, directly reflect data or data rights issues. The other suffix code, Code C, often reflects an inability to adequately describe the item. Control of the quality of delivered items requires specific approval of the source by the agency having design control. This control is in contrast to the more typical situation of controlling quality through the medium of conformance to drawings and other technical data. When we are unable to give a technical description of the part and the manufacturing processes, control of the source of manufacture is a viable alternative.



When one examines the pattern of the suffix codes at each of the ALCs, this pattern is again seen. Figure 4-3 shows the PMC Suffix Codes occurrence rates for each ALC. In every case, the percentage shown is the percentage of items with that suffix code using a base of all PMC coded items other than those coded with Suffix L and G. All entries over 5% are highlighted with the symbol .

In looking at the pattern of suffix codes which represent more than 5% of the coded items at the ALCs, it can be seen that they tend to be primarily in Suffix Codes D, H, and P. Since our research is focused on methods of removing impediments to the process of breakout to competition, our efforts should be directed to those areas which appear to be impeding successful breakout. The information portrayed in Figures 4-2 and 4-3 strongly suggest that primary emphasis be given to the issues of data and data rights. This emphasis is reinforced by results of the literature survey and interviews which are summarized in sections 2 and 3 above.

The interviews and literature survey also suggested that there are two separate issues which need to be addressed. The first issue involves systemic changes required in the acquisition process to effect a long term solution for the causes of the problem. The second issue is the identification of near term actions which can be taken to improve the competitive posture of AFLC on systems which have been or are about to be transitioned.

4.2 RESEARCH HYPOTHESES

In structuring the specific hypotheses for investigation, we were guided by three assumptions:

1. The objective of the research effort is to develop useful recommendations for changes to policies and procedures that can be described within an economic framework.



Procurement Method Suffix Code	----- ALC -----				
	Oklahoma City	Ogden	San Antonio	Sacramento	Warner Robins
A	1.3*	.4	.5	1.4	.1
B	.7	3.2	3.1	2.5	2.9
C	<u>6.7</u>	3.7	<u>9.2</u>	2.7	.8
D	<u>14.9</u>	4.7	<u>10.6</u>	<u>8.9</u>	<u>12.3</u>
E	.01	.4	.2	.01	2.3
H	<u>6.6</u>	<u>16.8</u>	<u>12.9</u>	<u>26.0</u>	1.3
K	.2	.2	.2	.01	.5
M	1.1	3.6	2.5	2.4	3.9
N	2.8	<u>5.9</u>	2.4	4.2	<u>6.4</u>
P	<u>18.2</u>	<u>8.3</u>	<u>9.2</u>	<u>11.3</u>	<u>9.7</u>
Q	2.2	2.5	4.9	1.7	<u>5.1</u>
R	.01	.3	.01	.01	3.7
U	.01	.1	4.0	.01	<u>5.1</u>
V	2.3	<u>9.5</u>	.7	.01	.3
Y	.2	.3	.01	.1	2.0

*NOTE: Percentage base is total PMC coded items less those with Suffix Codes L and G.

FIGURE 4-3 Frequency of Occurrence PMC Suffix Codes

2. Where previous studies have demonstrated the existence of a specific problem, we will not replicate that research.
3. The data gathered should support both of the problem issues discussed in paragraph 4.1.

The Phase 3 research effort will be directed towards four major areas of inquiry: Data Management, Data Rights, Management Planning and Economic Analysis. The basis for the research hypotheses in each of these major areas of inquiry is given below.

4.2.1 Data Management

Within the bounds of the assumptions above we are also constrained by the data available at the Air Logistics Centers.

To determine the nature of the specific problems involved with use of data packages, a sample of packages for the selected weapon systems will be evaluated at both the ALC and the Air Force Engineering Data Support Center. The drawings will be selected from those identified with PMC Suffix Codes D (missing data), and H (inaccurate or illegible data). This research hypothesis may be stated as:

H1: There is a pattern in the types of information which are unavailable in data packages.

As part of the review at the ALCs, inquiry will also be made into the documentation available to support the noncompetitive coding. A sample of parts from PMCs 3, 4, and 5 will be evaluated from each of the systems selected for review. The ALC records will be reviewed to determine if sufficient data exists to support the item coding. This research hypothesis can be stated as:

H2: Sufficient data is available in ALC files to support the decision for noncompetitive coding.



The quality of data being received by the Air Force has a great impact on its ability to achieve competition for spares. Quality, in this regard, has two facets. The first is the degree to which the data presentation complies with the applicable contract requirements. The second deals with its usability for the purpose intended. The responsibility for compliance with the format requirement seems to be well specified and the assigned personnel understand and acknowledge their responsibility. The issue of usability is not as clear. AFR 310-1 assigns responsibility to the System Program Office for this decision, but their understanding of the requirement and procedures for executing this responsibility needs to be better defined. This research hypothesis can be stated as:

- H3: The personnel in the SPOs understand their responsibility for determining usability of technical data and have established procedures for accomplishing the responsibility.

Closely related to the issues to be evaluated under H3 is the question of acceptance criteria for engineering data. There are many definitions currently in use for the data being acquired to support competitive acquisition of spares (see especially Tischer, Robert L., "Problems in Acquisition of Technical Data."). To develop an understanding of this area, the research hypothesis can be stated as:

- H4: Clear acceptance guidelines exist for the determination of the usability of technical data being acquired for competitive spare parts acquisition.

4.2.2 Data Rights

A significant preliminary research finding is that lack of data and data rights are primary impediments to successfully increasing spares competition. This finding suggests that the Phase 3 research effort focus on the current activities of the acquiring command, AFSC. The objective of this research focus is to determine if actions taken, or underway, offer potential future solution for the problem. Consequently,



it is recommended that the level of research effort planned for the ALCs be reduced by approximately 40%, and that the time thus saved be directed toward analysis of the contractual language currently in use and the nature of the data packages at the Air Force Engineering Data Support Center. The evaluation of the contract language will establish a baseline for evaluating the Air Force's effectiveness in establishing the necessary data requirements in system contracts and the adequacy of the clauses used. The research hypothesis may be stated as:

H5: Current contracts contain required data clauses for submission of data appropriate for competitive procurement of spares.

In evaluating potential increases in competition on systems which have been transitioned, the existence of data rights can be a significant issue. Where the engineering data in the AFLC files is shown as having limited rights and the ALC personnel feel that the limited rights markings are not appropriate, it is necessary to challenge the markings. In the Phase 2 interviews, a number of ALC personnel indicated that there was a lack of guidance on the procedures for challenging these markings, limited ability to find the contract under which the data was acquired and insufficient guidance on the information necessary to successfully challenge the restrictive marking. If progress is to be made in increasing competition on items currently in the AFLC system, this process must be clearly understood. Research will be focused on developing a clear definition of this process and an understanding of the impediments to a successful challenge. This hypothesis can be stated as:

H6: The process for challenging restrictive markings on data is well understood by ALC personnel.

4.2.3 Management Planning

A fundamental problem which was mentioned in the interviews related to the ability of the ALC to identify the required data at an early point in the system acquisition process. This identification is



a prerequisite to responding to the data call issued by the SPO. There have been a number of research efforts* directed toward identifying criteria which can be used for early identification of data needs. The issue to be explored under this effort can be stated as:

H7: Criteria exist for the early definition of data requirements for competitive acquisition of spare parts.

It was almost a unanimous belief among the personnel interviewed that the issuance of AFR 800-34, Acquisition Management-Engineering Data Acquisition, would solve many, if not all, of the problems involved with data for competitive spares procurement. To evaluate the expected impact of this regulation, the following hypothesis will be evaluated:

H8: The qualitative and quantitative resources to support the requirements of AFR 800-34 at the ALCs can be identified.

Another recurring theme in the literature and interviews was that the PMC process often occurred relatively isolated from other acquisition activities with similar focus. These primary areas involve logistics support analysis and provisioning, and AFLC involvement in the early stages of the acquisition process. The objective of the Logistics Support Analysis (LSA) is to structure, within Systems Engineering, a process to systematically pull together all the engineering functions that contribute to the design, development and deployment of an integrated logistics system. One of the elements of the LSA is the progressive definition, during the system design process, of the requirements for supply support. In this regard, the LSA identifies system requirements, by maintenance level and frequency of use, for spares, repair parts and consumables. As the design of the hardware and the logistic system progress, decisions are made which

*See, for example: Southwick, Mark, "Should the Air Force Buy Reprocurrency Data?", Wright-Patterson AFB, OH: Air Force Institute of Technology, September 1978.



determine the future spare parts requirements for the system. Visibility of those decisions, coupled with specific consideration of the future procurement method, could made a significant contribution to AFLC's ability to obtain competition for those spares. Provisioning is the management process for determining and acquiring the range and quantity of support items needed to operate and maintain an end item for an initial period of service. The provisioning technical data is the vehicle used by the contractor to identify spare and repair parts for the equipment being acquired. The decisions made during the provisioning process may impact on future competition capability. The initial spares purchases, which may involve relatively substantial quantities, can establish a precedent for future purchases. Aggressive attention to the issues of data rights and adequacy of data packages during this process can establish a firm basis for later competitive acquisition of spare parts. To explore these areas, two hypotheses will be investigated:

H9: PMC files show interaction with provisioning process.

H10: Improvements could result from establishing a connection between Logistics Support Analysis and Procurement Method Coding processes.

4.2.4 Economic Analysis

In developing an economic model of the spare parts competitive procurement process, certain cost data needs to be obtained and analyzed. There have been a number of studies and analyses of the costs and savings attainable, but little agreement exists. As a basis for development of the model the following hypotheses will be evaluated:

H11: System prime contracts show the price paid for technical data necessary for competitive spares procurement.

H12: Data exists which shows the cost of correcting an incomplete or illegible data package by the ALC.

H13: There is auditable data which shows the savings attainable by competitive spares procurement.



Figure 4-4 shows a summary of the areas of investigation for Phase 3 and the specific hypothesis under each area.

4.3 EXPERIMENTAL PLANS

The data necessary to evaluate the hypotheses described above need to come from three primary and one secondary sources. The three primary sources are:

1. the two ALCs to be visited,
2. the Aeronautical Systems Division, and
3. the Air Force Engineering Data Support Center (AFEDSC).

The secondary source is Hq Air Force Logistics Command. The required data is a mixture of hard data to be gathered from reviews of documentation, and opinions which are to be gathered through guided interviews. The primary thrust of the data acquisition will be accomplished within the scope of our review of the two weapon systems to be selected by the AFBRMC for detailed evaluation (see section 4.4). These systems will be evaluated primarily through visits to the assigned ALCs but with some subsidiary efforts at the SPO and AFEDSC. Figure 4-5 shows a matrix of the data type, method of gathering the data, the location(s) at which the data will be obtained and the objectives of the analysis to be accomplished on each of the hypotheses. The paragraphs below provide additional discussion of our experimental approach for each hypotheses. Where a particular discussion is applicable to more than one hypothesis, it is presented as a merged discussion.

4.3.1 Planning Hypotheses H1, H2, and H9

These hypotheses will be evaluated by selecting a sample of the items which have been coded for noncompetitive spares procurement within each of the two weapon systems selected for detailed Phase 3 analysis. The specific sample size and identification of the parts which will constitute the sample cannot be specified until the population is identified;



DATA MANAGEMENT

- H1: There is a pattern in the types of information which is unavailable in data packages.
- H2: Sufficient data is available in ALC files to support the decision for noncompetitive coding.
- H3: The personnel in the SPOs understand their responsibility for determining usability of technical data and have established procedures for accomplishing the responsibility.
- H4: Clear acceptance guidelines exist for the determination of the usability of technical data being acquired for competitive spare parts acquisition.

DATA RIGHTS

- H5: Current contracts contain required data clauses for submission of data appropriate for competitive procurement of spares.
- H6: The process for challenging restrictive markings on data is well understood by ALC personnel.

MANAGEMENT PLANNING

- H7: Criteria exist for the early definition of data requirements for competitive acquisition of spare parts.
- H8: The qualitative and quantitative resources to support the requirements of AFR 800-34 at the ALCs can be identified.
- H9: PMC files show interaction with the provisioning process.
- H10: Improvements could result from establishing a connection between Logistics Support Analysis and the Procurement Method Coding processes.

ECONOMIC ANALYSIS

- H11: System prime contracts show the price paid for technical data necessary for competitive spares procurement.
- H12: Data exists which shows the cost of correcting an incomplete or illegible data package by the ALC.
- H13: There is auditable data which shows the savings attainable by competitive spares procurement.

FIGURE 4-4 Phase 3 Research Hypotheses

Hypothesis	Type Data Required	Method of Gathering	Location	Analyses Objectives
H1	Definition of Data Shortages	Search of IM/SM Files	ALC	Statistics on frequencies and patterns
H2	Evaluation of Supporting Data	Search of IM/SM Files	ALC	Distribution of most common shortcomings
H3	Opinion & Existence of Procedures	Guided Interview	ASD	Similarity of perceptions and requirements
H4	Opinion	Guided Interview	ALD/ASD	Distribution of opinions & statistics on cited problems
H5	Listing of Causes	Search of Contract Files	AFEDSC	Enumeration and Summation
H6	Opinion	Guided Interview	ALC	Similarity of perceptions and process
H7	Opinion or Procedures	Guided Interview	ALC/AFALD	Objectivity of existing guidance
H8	Opinion	Guided Interview	ALC/Hq AFLC	Measures of workload predictability
H9	Evidence of Interaction	Search of Contract Files	ALC	Frequency of documented interaction
H10	Opinion	Guided Interview	ALC	Enumeration and summation
H11	Priced Data Line Items	Search of Contract Files	AFEDSC	Distribution and measure of pricing data
H12	Cost Histories	Search of IM/SM Files, Guided Interview	ALC	Distribution and measure of cost data
H13	Cost Histories	AFR 57-6 Documentation and MMED Files	ALC	Distribution and measure of cost data

FIGURE 4-5 Summary of Research Planning

an event which follows the selection of the specific systems. The sample size will be selected to ensure that the statistical inferences to be drawn will be sufficiently well founded to support recommended changes to procedures and regulatory guidance. The identification of sample items will be made in conjunction with a preliminary visit to the involved ALCs. These trips will also serve to provide to the ALCs specific information on the nature of the data required to support the research. We also anticipate accomplishing a preliminary review of the ALC files to determine any potential problems in accomplishing the detailed research. Following this preliminary visit, the actions necessary to secure access to the data will be accomplished and work packages for the samples will be developed. Figure 4-6 shows the preliminary layout of the worksheet for the file analysis. Upon completion of the detailed research, the worksheets will be analyzed to develop frequency data and to determine if patterns exist in the shortcomings of the data. These data will serve as basis for assessments of probable causative factors and appropriate corrective actions.

4.3.2 Planning: Hypothesis H3

This hypothesis will be evaluated by a guided interview of personnel assigned to the major SPOs at ASD. The SPOs to be visited will include:

F-15	LANTIRN
F-16	Pave Tack
A-10	Maverick
B-1	PLSS
EF-111A	

Within each SPO, interviews using the structure shown in Figure 4-7 will be accomplished with the Data Management Officer, the Product or Quality Assurance Manager, a representative of the Chief Engineer and a representative of the Deputy Program Manager for Logistics (DPML). The data gathered



will be evaluated to determine the perception of the SPO responsibility of AFR 310-1 and the variation in procedural approaches to this issue.

4.3.3 Planning: Hypotheses H4, H6, H7, H8, and H10

These hypotheses will be evaluated through the vehicle of guided interviews which will be accomplished at the ALCs. The primary focus of the interviews will be on the personnel with responsibility for the two systems selected for detailed review. The personnel to be interviewed will include representatives of MMED, MMA, PM, the 57-6 Program Manager, the competition advocate and the small business specialist. In addition interviews supporting hypothesis H4 will be accomplished at ASD (in conjunction with the interviews described in paragraph 4.3.2). Interviews focusing on Hypothesis H7 will be accomplished at AFLC Headquarters. Persons to be interviewed will be drawn from the population of individuals with responsibility for development of policies and procedures in the specific area covered by the proposed AFR 800-34. The interviews will be accomplished for these hypotheses using the formats of Figures 4-8 (for H4 and H6), Figure 4-9 (for H7 and H10) and Figure 4-10 (for H8).

4.3.4 Planning: Hypotheses H5 and H11

These hypotheses will be evaluated through a review of the contract files at the Air Force Engineering Data Support Center (AFEDSC). Preliminary discussions with AFEDSC personnel indicate that there are on file approximately 8000 to 9000 contracts. It is assumed that a number of these are no longer active. A statistically relevant sample of the current open Air Force contracts will be drawn and data as shown in Figure 4-11 will be extracted from the contract documents. It is anticipated that the sample will include approximately 200 Air Force contracts. The data gathered will be evaluated to determine the relative usage of the various data clauses and to determine if there are any patterns of changing clause usage over time. The relative frequency of pricing information for technical data will be developed and the available pricing data will be quantified to determine its usability for economic analysis.



DATA WORKSHEET

PMC: _____ Data Acquired under contract: _____ System: _____

Item Nomenclature: _____ NSN: _____

Estimated Annual Buy Value: _____

Last Three Buys	Date	AMOP	\$Value
--------------------	------	------	---------

1.

2.

3.

Basis for noncompetitive coding:

Current impediments to competitive purchase:

Evidence of interaction with provisioning:

How complete is data package?

Can the currency of the data package be determined:

FIGURE 4-6 Data Worksheet: IM/SM File Review

Person Interviewed:

Related Training:

Grade:

Position:

Experience -- Participated in:

<input type="checkbox"/> Data Call	<input type="checkbox"/> PMC Coding
<input type="checkbox"/> Data Requirements Review	<input type="checkbox"/> Provisioning
<input type="checkbox"/> Negotiation of Data Clauses	<input type="checkbox"/> Acceptance of Data
<input type="checkbox"/> Pricing of Data	<input type="checkbox"/> PCA
<input type="checkbox"/> PDR	<input type="checkbox"/> FCA
<input type="checkbox"/> CDR	<input type="checkbox"/> ECPs dealing with data

Is data required from the system contractor(s) to support competitive procurement of spare parts?

What is the SPO responsibility in determining the adequacy of technical data for competitive spares procurement? Is there any authority cited for this position?

How is this responsibility discharged within the SPO?

- a. Procedures
- b. Practice

What do you see as the primary problem in discharging that responsibility?

FIGURE 4-7 Guided Interview Sheet - SPO

DATA WORKSHEET (H4 and H6)

Person Interviewed:

Position:

Organization:

Time in Position:

Describe functional responsibility of individual for spares procurement.

List Data/Engineering courses taken.

What basis is used for determining the usability of technical data for competitive procurement of spares?

What guidance documents are available to assist in the decision on the usability of data?

If data is not usable, what are the most common shortcomings?

If data contains restrictive rights markings which appear inappropriate, what is the process by which these restrictions may be challenged?

When past challenges have been unsuccessful, where has the process broken down and for what reasons? Can this be documented?

FIGURE 4-8 Data Worksheet - Hypotheses H4 and H6

Person Interviewed:

Data Courses Taken:

Position:

Organization:

Time in Position:

Describe functional responsibility of individual for spares procurement:

On what basis is the decision made to acquire data and data rights for specific items within a weapon system?

What information is required to make this decision?

Typically, at what point in the development process is this detail available?

How does the ALC get access to the required data?

What guidance documents are available to assist in making the decision?
How useful are they?

Would the data from the Logistics Support Analysis process provide improved ability to project data requirements?

FIGURE 4-9 Data Worksheet - Hypotheses H7 and H10

DATA WORKSHEET (H8)

Person Interviewed:

Relevant Training Courses:

Position:

Organization:

Time in Position:

Describe functional responsibility of individual for spares procurement:

The AFR 800-34, currently in the printing process, establishes a number of tasks. What are the quantitative and qualitative skills that will be necessary to accomplish the following set of tasks (drawn from AFR 800-34)?

- Participate in periodic reviews, audits, and inspection of contractor and subcontractor data to make sure they are technically accurate, adequate, and comply with contractual drawing preparation requirements.
- With the implementing command and AFALD/PTD, determine and contractually define engineering data to be acquired and make sure that the necessary SOW tasks, data requirements (CDRL), and ordering and technical assistance option provisions are included in each solicitation and contract.
- With the implementing command, accept or reject any contractor proposed changes, use of limited rights, deviations, or interpretation of data requirements and tasks.
- Assist the implementing command in planning for engineering data acquisition.
- Advise the implementing command of supporting and operating commands' engineering data needs, including level of data required.
- Specify the requirement for and participate in in-process reviews and audits.
- Identify the data item descriptions (DIDs) and delivery dates for engineering data.
- Review each engineering data recommendation made by the contractor during proposal or during the contract period, particularly the drawing deviations or differences outlined. Determine the acceptability of the contractor's methods, schedules, and planning information for engineering data acquisition management.

FIGURE 4-10 Data Worksheet - Hypothesis H8

FIGURE 4-10 Data Worksheet - Hypothesis H8 (cont'd)

- Take part in development of engineering data checklists and procedures to accomplish in-process reviews of data preparation, updates, configuration audits, and acceptances.
- Provide qualified personnel to take part in each function of engineering data acquisition.

4.3.5 Planning: Hypotheses H12 and H13

AFR 57-6 (paragraph 6-102) requires documentation of savings resulting from application of high dollar spare parts breakout. A sample of items for which savings have been reported will be identified from the Replenishment Spare Parts Hi-Dollar Fiscal Year Procurement and Savings Report for each of the two systems selected for review. The population will be all items for which savings have been reported in the past three fiscal years. For each item in the sample selected, the data identified in Figure 4-12 shall be obtained by reviewing the file documents. The data obtained will be evaluated to determine the degree to which the costs involved in breakout can be captured in a descriptive model which can serve as an effective management tool in the breakout process.

4.4 SYSTEMS TO BE REVIEWED

Much of the Phase 3 research effort will be expended in the detailed review of two specific weapon systems. The potential systems were restricted to those whose development was managed by the Aeronautical Systems Division. This was done for three reasons:

1. Aeronautical systems offer significant opportunity for competitive spares procurement.
2. Access to SPO personnel could be accomplished without expenditure of travel funds.
3. Diversity of technologies represented in the subsystem.

In developing the recommended systems, the Air Force has suggested that the selection of the two systems should reflect the following criteria:

One large and one small program
One older and one more current
One aircraft program should be studied
Two different contractors should be represented



DATA WORKSHEET (H12 and H13)

Item: _____ System: _____

NSN: _____

PMC: _____ AMOP: _____

Actions taken to reclassify item to less restrictive status:

Cost of reclassification actions:

Savings Reported:

Basis of savings computation:

FIGURE 4-12 Data Worksheet - Hypotheses H12 and H13

Two different ALCs should be represented
One system should represent some success in breakout
Preference to companies with whom Analytics has non-disclosure agreements

To determine the systems which would be suggested and to provide information to the AFBRMC on which to base their selection of the two systems for detailed review, the matrix shown in Figure 4-13 was developed. The matrix presents basic data for 14 systems whose development was or is being managed by ASD. Six systems have been suggested for study. Four of these systems, the A-10, F-15, F-16, and F-111 are major and two, the AGM-65 Maverick and the Pave Tack are less than major. Comments on each of these systems follow.

A-10: Has been subjected to study by DAS. Since design concept emphasized simplicity, should offer major opportunity for breakout. Interviews indicate SMALC making major effort in breakout. Data as originally delivered by the prime was not acceptable and contract modification was accomplished to obtain the necessary data. SPO personnel available.

F-15: Also studied in DAS audit. Reflects relatively contemporary approach to data acquisition, as does the A-10. Engineering data still in delivery process. Development of an attack version of the F-15 is currently in funds programming phase. Total buy of F-15A now projected to be 1,107 aircraft, thus providing a large base of systems requiring spares support.

F-16: May present difficulties due to; a) origination as a technology demonstration program, and b) multinational makeup of industrial base. Does have person in SPO assigned to keep track of claims of limited rights.



System	Prime Contractor	Transition	Size	ALC	Nondisclosure Agreement	Audits	Prod Start	Suggested
KC-135 Mod	Boeing	Part	S	OC			1980	
C-130H	Lockheed	Yes	L	WR			1973	
C-141	Lockheed	Yes	L	WR			1962	
F-16	General Dynamics	Part	L	OO	X		1977	X
F-15	McDonnell/Douglas	Part	L	WR		AF DAS	1973	X
A-10	Fairchild Republic	Part	L	SM		DAS	1974	X
ALCM	Boeing	No	L	OC		AF	1981	
B-1B	Rockwell International	No	L	OC		AF	1983	
AGM-65	Hughes Aircraft	Yes	S	OO	X		1960's	X
EF-111	Grumman	Part	S	SM	X		1978	
F-111	General Dynamics	Yes	L	SM	X		1960's	X
PLSS	Lockheed	No	S	N/A		AF	1983	
LANTIRN	Martin-Marietta	No	S	WR	X		Unk	
Pave Tack	Ford Aerospace	No	S	WR	X		1974	X

FIGURE 4-13 System Data

F-111: Less contemporary in terms of data and data rights acquisition. Stable design since aircraft is out of production. Relatively smaller fleet yields lower absolute dollar cost for spares. SPO personnel not easily identified.

AGM-65 Maverick: Stable design of basic missile. Current efforts underway to develop second source for Infrared (IR) Maverick configuration. At least one major subsystem (single rail launcher) successfully broken out for competitive buy. Nondisclosure statement with Hughes Aircraft. SPO still operating.

Pave Tack: High content of electronics. Some IR and optics might be appropriate for FLIR common module approach. Problem with security classification on system. Nondisclosure agreement with Ford Aerospace. Status of transition unclear to Analytics.



5. CONCLUSIONS

There have been a significant number of studies of the process for competitively procuring weapon system spare parts. There is fairly strong evidence within the literature surveyed that improvements in the proportion of spares competed depends upon improvements being made in four major areas:

1. data management,
2. data rights,
3. management planning, and
4. economic analyses.

The information which Analytics obtained in the literature search and interviews has been evaluated and thirteen research hypotheses have been identified for the Phase 3 research effort. These hypotheses are listed in Figure 4-4. The Phase 3 efforts should take the state of knowledge represented in the published literature and extend it to allow for the development of specific procedural and management recommendations that will improve the capability of AFLC to acquire weapon system spare parts on a competitive basis.

In evaluating the literature dealing with economic analysis, there appears to be little hard data concerning the specific costs of breakout and the savings obtainable. The development of a viable descriptive economic analysis model will depend heavily upon Analytics success in finding specific data on cost and savings during the Phase 3 research.



AFR 800-34, Acquisition Management-Engineering Data Acquisition, is viewed by many of the persons within the community charged with competitive spares acquisition as a major step toward improving the process. During Phase 3, we will attempt to evaluate the degree to which AFR 800-34 addresses the known deficiencies and to define the actions necessary to effectively implement AFR 800-34.



6. RECOMMENDATIONS

Based on the discussion above, Analytics makes the following recommendations:

1. That one of the three trips to each ALC be deleted and the effort redirected to research efforts at the Aeronautical Systems Division and the Air Force Engineering Data Support Center.
2. That AFBPMC select the two systems for detailed review and approve initiation of Phase 3 effort.



APPENDICES

- A Procurement Method Codes and
Suffix Codes
- B Definitions
- C Selected Bibliography
- D DoD Publications, Regulations,
Manuals, Pamphlets, and Military
Standards
- E PMC Suffix Code Distribution
- F List of Persons Interviewed
- G Teleteach Agenda Topics
- H Protocol for Interviews with DoD,
Air Staff, and AFSC Personnel
- I Forms and Categories



PROCUREMENT METHOD CODES AND SUFFIX CODES

<u>Procurement Method Code</u>	<u>Explanation</u>
0	Not established.
1	Items screened and found to be already competitive.
2	Items screened and determined for the first time to be suitable for competitive procurement. A replenishment item will be included in this group only when the identification as PMC 2 is supported by the procurement history of the item. The alternative identification is PMC 1.
3	Items screened and found to be procured directly from the actual manufacturer or vendor, including a prime contractor who is the actual manufacturer.
4	Items screened and determined for the first time to be suitable for direct purchase from the actual manufacturer or vendor rather than the original prime contractor for the end items which these parts support. A replenishment item will be included in this group only when the identification as PMC 4 is supported by the procurement history record of the item. The alternative identification is PMC 3.
5	Items screened and determined not suitable for competitive procurement or direct purchase and which, therefore, continue to be procured from a prime contractor who is not the actual manufacturer.

<u>Procurement Method Suffix Code</u>	<u>Explanation</u>
O	Not established.
A	Government's rights in data questionable.
B	Source control.
C	Procurement from approved source.
D	The data not available.
E	Status can be improved.
F	This item is in phased provisioning.
G	Data is technically suitable and legally clear.
H	Inadequate data.

Procurement
Method
Suffix Code

Explanation

J	Restricted to the prime contractor.
K	Produced from class 1A castings.
L	Low dollar value of procurement.
M	Master or coordinated tooling.
N	Requires special test.
P	Rights to use data legally unavailable.
Q	Requires exceptional unique manufacturing processes.
R	Rights to use data restricted.
S	Security classification.
T	Qualified Products List (QPL).
U	This item is uneconomical to compete.
V	High reliability part.
W	Method indicated by the procurement method code.
Y	Design unstable.
Z	Necessary to ensure standardization and interchangeability.

DEFINITIONS*

Authorized Data List (ADL) -- A master list of Data Item Descriptions from which technical data requirements must be selected for contractual application.

Contract Data Requirements List (CDRL) -- A contract form, DD Form 1423, listing all technical data items selected from an ADL required to be delivered under the contract.

Data Call -- A request by the System/Project Manager, Commander or other authority to all Government participants to submit their requirements for contractor-prepared data on a given procurement action.

Data Item Description (DD Form 1664) -- A form which specifies the data required to be furnished. The forms specifically define, using the descriptive method, the content, preparation instructions, format and intended use of each data product.

Data Package -- A collection of data products (items) which is complete for a specific use.

Data Price -- The price associated with preparing and delivering a technical data item to the Government.

Data Repository -- A DoD organizational entity, component, or a specifically designated contract facility which is responsible for indexing, storing, retrieving and distributing technical data.

Deferred Delivery -- A situation in which the contract specifies the technical data to be delivered but does not schedule a delivery date.

Deferred Ordering -- Delaying the ordering of the data until the need is economically determined.

Deferred Requisitioning -- A situation wherein the contract specifies the format, range, and kinds of data that the contractor is obligated to deliver when requisitioned by the Government, and prescribes the ordering conditions and pricing terms. It contemplates retention of masters and copies by the contractor and delivery of copies of individual drawings (or other items of data) as needs arise.

*Source: DoD Instruction 5010.12,
"Management of Technical Data," 5 Dec 1968.

Deliverable Technical Data -- Technical Data (listed on the Contract Data Requirements List) required to be delivered under terms of the contract.

Delivery of Technical Data -- The transfer of technical data from the contractor/DoD component to the activity designated in the contract.

Ordering of Data -- The identification in a contract of the technical data which the contractor shall be obligated to deliver under the contract.

Technical Data -- Technical data are recorded information used to define a design and to produce, support, maintain or operate items of defense materiel. These data may be recorded as graphic or pictorial delineations in media such as drawings or photographs; text in specifications or related performance or design type documents; in machine forms such as punched cards, magnetic tape, computer memory printouts; or may be retained in computer memory. Examples of recorded information include engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications, and related information.

Technical Data Management -- The discipline which embraces the identification, coordination, collation, validation, integration, and control of data requirements; planning for the timely and economical acquisition of data; insuring the adequacy of acquired data for their intended use; and management of data assets after receipt. This discipline also includes supervision of the distribution of data acquired under contract and monitoring storage, retrieval and disposal of these data.

Technical Data Management Office -- The organizational element at any level of a DoD component which serves as a data management central focal point and provides advice and assistance directly to the head of the component in the implementation of this instruction and related implementing directives.

Technical Data Management Officer -- An individual designated by a responsible authority (Commander, System/Project Manager, Plant Representative, Director or other authority) to assist and advise in applying data management disciplines within the area of responsibility of the appointing authority.

Technical Data Requirements Review Board -- A Board, comprised of representatives from those functional or organizational units which have data requirements, and appointed by a responsible authority (System/Project Manager, Commander or other authority) to review the Contract Data Requirements List and assist and advise in the management of technical data.

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US AIR FORCE ACQUISITION LOGISTICS DIVISION (AFLC)

Lessons Learned

01255	Provisioning Policy, Methodology, Negotiation
02555	Source Data Package
02845	Configuration Management - Specification Files
02965	Technical Data Management
02995	Technical Data Management
03005	Contractor Reprourement Drawings
03365	Component Breakout Selection Process
04445	Management of Engineering Data
07405	Proprietary Processes
08095	Control of Contractor Drawing Practices
09565	In-Process Reviews of Engineering Data (ED)
10725	Leader/Follower Contracting
11645	Direct Procurement by ALCs
12115	Provisioning Funds for Breakout

UNITED STATES AIR FORCE
PMC SUFFIX CODE DISTRIBUTION (%)

Procurement Method Suffix Code	Procurement Method Codes					
	Total*	1	2	3	4	5
ALL	100%	12.8	11.9	66.6	6.1	2.5
A	0.5	0.1	0.0	0.5	0.7	2.7
B	2.4	3.5	3.7	1.5	7.4	1.9
C	5.5	8.1	4.7	4.3	7.9	20.8
D	7.4	2.5	2.6	6.9	29.9	10.6
E	0.3	0.0	0.0	0.3	1.8	0.4
F	0.0	0.0	0.0	0.0	0.0	0.0
G	16.6	60.0	74.7	0.0	0.0	0.0
H	8.0	4.9	1.9	9.1	13.1	8.6
J	0.0	0.0	0.0	0.0	0.0	0.0
K	0.3	0.3	0.6	0.2	0.3	0.5
L	39.6	9.6	0.0	57.1	3.2	15.6
M	1.9	1.7	1.4	1.8	3.7	2.6
N	2.5	1.2	1.0	2.7	4.4	6.1
P	7.9	3.4	2.3	8.2	19.9	7.1
Q	3.2	2.8	6.3	2.5	4.9	5.1
R	0.7	0.0	0.0	1.0	0.2	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0
T	0.2	1.3	0.3	0.0	0.0	0.1
U	1.3	0.0	0.0	1.6	0.3	10.0
V	1.3	0.5	0.4	1.2	3.9	6.6
W	0.0	0.0	0.0	0.0	0.0	0.0
Y	0.0	0.0	0.0	0.3	1.3	0.8
Z	0.8	0.0	0.0	0.1	0.0	0.4
	100**	100	100	100	100	100

*Totals exclude PMC-0,
since they have yet to
be screened and coded.

Source IMSS-11 Report,
28 March 1982

**Note: Totals may not add
to 100% due to rounding.

APPENDIX E

OGDEN ALC PMC SUFFIX CODE DISTRIBUTION (%)

Procurement Method Suffix Code	Procurement Method Codes					
	Total*	1	2	3	4	5
ALL	100%	25.9	7.4	57.3	3.7	5.7
A	0.4	0.0	0.0	0.5	1.7	0.9
B	3.3	3.1	1.1	4.0	3.3	0.1
C	5.8	10.7	3.0	4.2	9.7	1.2
D	4.1	1.6	1.5	5.4	6.4	4.4
E	0.3	0.0	0.0	0.5	0.0	0.3
F	0.0	0.0	0.0	0.0	0.0	0.0
G	17.7	52.6	55.7	0.0	0.0	0.0
H	14.3	4.4	4.5	19.0	1.6	33.0
J	0.0	0.0	0.0	0.0	0.0	0.0
K	0.6	0.3	4.2	0.3	0.3	0.2
L	24.4	14.9	0.0	35.7	0.0	0.1
M	4.5	5.1	5.8	4.6	0.9	1.2
N	5.4	1.3	7.5	5.7	0.9	21.4
P	7.8	3.6	7.1	10.2	4.4	6.7
Q	2.6	0.8	6.2	2.1	13.6	3.1
R	0.3	0.0	0.0	0.5	0.3	0.0
S	0.1	0.0	0.0	0.1	0.0	0.0
T	0.4	1.1	0.4	0.2	0.0	0.6
U	0.1	0.0	0.0	0.2	0.0	0.0
V	7.6	0.5	2.7	6.4	56.5	26.0
W	0.0	0.0	0.0	0.0	0.0	0.0
Y	0.3	0.0	0.0	0.4	1.0	0.7
Z	0.0	0.0	0.0	0.0	0.0	0.0

*Totals exclude PMC-0

Source: IMSS-11 Report;
28 March 1982

OKLAHOMA CITY ALC PMC SUFFIX CODE DISTRIBUTION (%)

Procurement Method Suffix Code	Procurement Method Codes					
	Total*	1	2	3	4	5
ALL	100%	18.6	22.6	38.7	17.0	3.1
A	1.3	0.0	0.0	2.8	0.8	2.6
B	3.4	5.0	7.6	1.2	1.5	0.0
C	10.5	10.8	8.6	13.0	6.4	12.3
D	16.3	3.7	5.7	18.2	42.6	1.4
E	0.1	0.0	0.0	0.1	0.0	0.6
F	0.0	0.0	0.0	0.0	0.0	0.0
G	28.5	68.7	69.4	0.0	0.0	0.0
H	7.3	2.3	2.0	11.8	10.1	2.2
J	0.0	0.0	0.0	0.0	0.0	0.0
K	0.3	0.0	0.0	0.4	0.3	1.0
L	3.1	0.0	0.0	4.1	0.2	50.5
M	1.1	0.2	0.2	2.2	0.8	1.4
N	3.3	1.4	1.1	5.6	2.7	3.8
P	19.5	5.2	4.1	30.7	29.8	18.4
Q	2.3	0.5	0.7	4.1	2.5	2.6
R	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0
T	0.4	2.0	0.1	0.0	0.0	0.0
U	0.0	0.0	0.0	0.0	0.0	0.0
V	2.4	0.4	0.4	4.8	2.1	1.2
W	0.0	0.0	0.0	0.0	0.0	0.0
Y	0.3	0.0	0.0	0.5	0.3	1.4
Z	0.1	0.0	0.0	0.1	0.0	0.7

*Totals Exclude PMC-0

Source: IMSS-11 Report,
28 March 1982

SACRAMENTO ALC PMC SUFFIX CODE DISTRIBUTION (%)

Procurement Method Suffix Code	Procurement Method Codes					
	Total*	1	2	3	4	5
ALL	100%	15.3	7.1	71.4	2.9	3.3
A	0.7	0.3	0.0	0.7	1.9	2.9
B	1.8	2.2	4.3	1.4	4.1	0.3
C	1.8	2.7	2.3	1.7	2.2	0.3
D	4.4	0.8	2.9	3.5	18.1	36.4
E	0.0	0.0	0.0	0.0	0.0	0.0
F	0.0	0.0	0.0	0.0	0.0	0.0
G	11.1	35.5	83.8	0.0	0.0	0.0
H	14.1	13.4	2.3	15.0	28.0	8.2
J	0.0	0.0	0.0	0.0	0.0	0.0
K	0.0	0.0	0.0	0.0	0.5	0.0
L	55.8	40.1	0.0	67.3	1.0	33.7
M	1.2	0.7	0.6	1.3	4.9	2.1
N	2.1	0.2	1.4	2.1	9.4	4.8
P	5.7	3.0	1.5	5.8	27.4	6.5
Q	0.8	0.2	0.3	1.0	1.6	1.4
R	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0
T	0.1	0.4	0.0	0.0	0.0	0.0
U	0.1	0.0	0.0	0.1	0.0	0.8
V	0.0	0.0	0.0	0.0	0.0	0.8
W	0.1	0.2	0.4	0.0	0.0	0.0
Y	0.1	0.0	0.0	0.0	0.0	1.0
Z	0.1	0.0	0.0	0.0	0.0	1.3

*Totals exclude PMC-0

Source: IMSS-11 Report
28 March 1982

SAN ANTONIO ALC
PMC SUFFIX CODE DISTRIBUTION (%)

Procurement Method Suffix Code	Procurement Method Codes					
	Total*	1	2	3	4	5
ALL	100%	12.0	11.5	68.5	6.0	2.1
A	0.4	0.0	0.0	0.3	0.3	6.0
B	2.6	3.7	2.1	1.3	16.7	0.5
C	7.4	10.0	3.7	7.1	12.5	8.5
D	7.0	2.5	0.8	7.4	21.7	13.4
E	0.2	0.0	0.0	0.1	2.0	0.0
F	0.0	0.0	0.0	0.0	0.0	0.0
G	18.2	70.2	85.7	0.0	0.0	0.0
H	8.9	4.0	2.6	10.1	19.3	4.0
J	0.0	0.0	0.0	0.0	0.0	0.0
K	0.2	0.2	0.1	0.2	0.2	0.8
L	38.4	1.0	0.0	55.9	0.0	0.3
M	1.7	0.6	0.7	1.5	7.1	6.8
N	1.8	1.6	0.3	1.9	3.6	1.9
P	6.0	1.3	0.6	7.6	8.4	3.9
Q	3.6	2.2	2.4	3.5	7.2	13.8
R	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0
T	0.3	1.6	0.4	0.0	0.0	0.0
U	2.5	0.0	0.0	2.5	0.0	38.1
V	0.6	1.1	0.4	0.6	0.4	1.2
W	0.0	0.0	0.0	0.0	0.0	0.0
Y	0.1	0.0	0.0	0.1	0.0	0.5
Z	0.0	0.0	0.0	0.1	0.0	0.0
	100	100	100	100	100	100

*Totals exclude PMC-0

Source IMSS-11 Report,
28 March 1982

WARNER ROBINS ALC
PMC SUFFIX CODE DISTRIBUTION (%)

Procurement Method Suffix Code	Procurement Method Codes					
	Total*	1	2	3	4	5
ALL	100%	5.1	10.4	82.2	2.1	0.2
A	0.1	0.1	0.0	0.1	0.6	1.7
B	1.3	2.1	0.8	1.1	11.9	1.1
C	0.6	1.5	1.6	0.3	2.1	9.1
D	4.8	4.0	0.6	5.2	11.7	24.6
E	0.9	0.0	0.0	0.7	13.6	7.4
F	0.0	0.0	0.0	0.0	0.0	0.0
G	10.2	58.1	69.2	0.0	0.0	0.0
H	0.6	1.1	0.2	0.6	1.2	5.7
J	0.0	0.0	0.0	0.0	0.0	4.0
K	0.5	1.9	1.6	0.2	0.7	1.7
L	63.2	0.7	0.0	76.7	0.0	2.9
M	2.1	5.8	3.3	1.6	8.0	1.7
N	2.5	1.2	0.4	2.5	15.4	10.8
P	4.0	5.4	1.1	4.1	8.7	6.3
Q	4.9	16.8	20.7	2.1	7.7	17.1
R	1.4	0.3	0.0	1.6	1.4	0.0
S	0.0	0.1	0.0	0.0	0.0	0.0
T	0.1	0.3	0.4	0.0	0.0	0.0
U	1.9	0.0	0.0	2.2	3.6	0.0
V	0.2	0.5	0.0	0.1	0.3	1.1
W	0.0	0.0	0.0	0.0	0.0	0.0
Y	0.7	0.0	0.0	0.6	13.2	4.6
Z	0.2	0.0	0.0	0.2	0.3	0.6
	100	100	100	100	100	100

*Totals exclude PMC-0

Source IMSS-11 Report,
28 March 1982

LIST OF PERSONS INTERVIEWED

1. Air Staff (LEYE):
LtCol Eugene Tattini
Mr. Bill Jiminez
2. Air Staff (RDCL):
Mr. W.L. Smith
Mr. John Robuck
3. Aeronautical Systems Division (ASD/AW):
Mr. Frank Evans (AWL)
Mr. Bruce McKalip (AWL)
Mr. Bob Tischer (AWZ)
4. Acquisition Logistics Division (ALD/PT):
Mr. John Magnone (PTLA)
Mr. James Harris (PTLA)
LtCol Sylvester Booker (PTD)
Mr. Paul Venditti (PTD)
5. Defense Audit Service (DAS):
Mr. James Helfrich
6. Air Force Audit Service (currently at AFPRO, General Electric Co., Evendale, Ohio):
Mr. Richard Kestner
7. Air Logistics Centers (ALCs):
Competition Advocates, System Managers,
and Data Managers, using the Air Force
Institute of Technology's Teleteach
System.

27 October 1982

TELETEACH AGENDA TOPICS

1. Names and positions of participants.
 2. What do you actually do as:
 - Competition advocate?
 - AFR 57-6 monitor?
 - Other position?
 3. Where do you get data to do your analysis?
 - Supply control studies?
 - Contract data files?
 - Contract clauses review?
 - Other?
 4. a. Who supplies data for:
 - IMSS-11-Quarterly Report-Procurement Method/Procurement Method Suffix Codes-RCS: DLA(Q)1739-11(5).
 - BZ82ASS-Monthly 57-6 Report (Mismatch Report).
 - Spare Parts Procurement Reporting System (DD-I&L(Q)714.

b. Where does the data actually come from? Is it accurate?
 5. a. What rewards/penalties exist for increasing competition?

b. Is it an element in performance standards/merit pay standards?
 6. Each ALC's Competition Advocate is given FY83 Competition Goals by letter (AFLC LOR letter, subject: FY83 Competition Goals, 19 July 1982).
- | | |
|-----------|---------------|
| OC: 29.7% | |
| OO: 35.3% | 2750th: 44.4% |
| SA: 28.2% | AGMC: 71.4% |
| SM: 34.8% | AFALD: 84.6% |
| WR: 28.4% | |
- a. Where did these goals come from?
 - b. Are they realistic and attainable?
 - c. Who supplies the data? Where does it come from? Manual? Mechanical?
 - d. At what level of command is this information reviewed? How often?

APPENDIX G

7. What are the real factors inhibiting increased competition? Are they real or myths which have been institutionalized?
8. As competition advocate or 57-6 monitor, etc., what is the percentage of your position description/actual time spent on this subject? Does anyone assist you directly?
9. Specific questions for discussion include:
 - a. Does the use of certain PMC Suffix Codes predominate? If so, does that provide an indicator of where to focus primary attention?
 - b. Is there clear guidance for the decision on ownership of data rights, including procedures and contract clauses?
 - c. Is there a firm basis for establishing quality and acceptability requirements for data packages?
 - d. Are procedures for updating data packages adequate to ensure currency? Are they being followed?
 - e. Is there an adequate basis for the economic analysis of proposed breakouts?
 - f. Are there quantitative and qualitative skill shortfalls? (Do we have enough of the right kind of people?)
 - g. Have the early phase efforts necessary to establish competitive spares procurement been defined? Are they being followed?
 - h. Do problems of motivation (either contractor or government) impact successful execution of competitive spares procurement?
 - i. Are there differences in philosophy for large volume versus small volume procurements?
 - j. Do certain systems, commodities, or political considerations unduly influence the statistics? (Fuels, TRIDENT, socio-economic programs, etc?)

1 Nov 82

PROTOCOL FOR INTERVIEWS WITH
DOD, AIR STAFF, AND AFSC PERSONNEL

1. What changes to current policies, directives, regulations, or procedures are underway or under consideration?
2. Where are the pressures emanating from with respect to increasing competition?
3. What changes in the DAR(FAR) are needed/being implemented to provide for increased competition?
4. How is the alleged conflict between competitive procurement and socio-economics programs being addressed? (Small business, minority-owned business, women-owned business, prison industries, Walsh-Healy Act, etc.)
5. Assuming that current policies, directives, regulations, procedures, etc. are adequate, what are the real or perceived impediments to increasing competition for spares?
6. What is the real objective of increasing competition? Reduced unit price? Reduce total cost? Expanding industrial base? Other? Are we willing to pay the price?
7. What is the position on off-shore procurement?
 - a) Spares?
 - b) Strategic materials?
 - c) Quality assurance?
8. Data seems to be a prime factor. Is there a disconnect between the organizations who buy the data and those who want to use it?
9. What motivators are provided to incentivize people to increase competition? What accountability exists? Is there a closed loop?
10. Are we really over-specifying our requirements? Are MIL-STNDS, etc. too restrictive to permit real competition? Who says? Who decides?
11. At what level are competition objectives reviewed? How often? What is the feedback and control mechanism?

APPENDIX H

12. Reports indicate that we (try to) use 2-3% of the data that we buy. How much data is enough? Who decides and when do they decide? Should we price data early and consider deferred ordering/delivery?
13. Do the government legal people have the resources and motivation to support data rights disagreements, both at the front-end or in litigation to protect the government's interests?
14. Is there clear guidance for the decision on ownership of data rights, including procedures and contract clauses?
15. How is quality being addressed? How is quality specified? Up front? DCAS, AFPRO, acceptance testing? Failure analysis? Does increased competition make the problem more difficult? How is this being addressed? Should we buy to industry standards?
16. Are competition objectives being established in performance standards and merit pay standards? How can you reward/penalize an item manager/buyer when the decisions on data requirements, acceptance, and validity are determined by somebody else?
17. How do we discriminate between "real" competition and "phony" competition? (A manufacturer sets up small business distributors/vendors, etc.)
18. How far should we pursue the Commercial Item Support program, etc. for items that are not truly commercial or off-the-shelf items? Are there real economies in centralized procurement/storage/distribution?
19. Can/should we go to the I.D.T.C./schedule arrangement such as used by GSA? Are contractors willing to bet "on the come" and hold inventories for us?
20. Contractors' strategies are motivated by economics (interest rates, expectations, return on investment, return on equity, etc.). Is the government willing to make commitments or put money up-front to increase the competitive base?
21. One solution is to increase resources. But every activity proposes that solution. Does decentralized management authority/responsibility dilute these efforts?
22. Is the government able to staff/pay enough of the right kind of people to do the job? Should we change the mix of engineers/technicians?

23. Is the government willing and able to resource the data purchase/storage/retrieval assets to do the job? If so, what will suffer?
24. Is there a firm basis for establishing quality and acceptability requirements for data packages?
25. Is there an adequate basis for the economic analysis of proposed breakouts?
26. If you could change anything, what would you do?

FORMS AND CATEGORIES
(MIL-D-1000, DRAWINGS, ENGINEERING AND
ASSOCIATED LISTS, 1 MARCH 1965)

Intended use categories:

- Category A - Design Evaluation
- Category B - Interface Control
- Category C - Service Test
- Category D - Logistic Support
- Category E - Procurement (Identical Items)
- Category F - Procurement (Interchangeable Items)
- Category G - Installation
- Category H - Maintenance
- Category I - Government Manufacture
- Category J - Interchangeability Control

Forms of Drawings:

- Form 1 - Drawings to Military Standards
- Form 2 - Drawings to Industry Standards
(Partial Military Controls)
- Form 3 - Drawings to Industry Standards
(Minimum Military Controls)

LEVELS
(DOD-D-1000B, DRAWINGS, ENGINEERING AND
ASSOCIATED LISTS, 28 OCTOBER 1977)

Level 1, Conceptual and Developmental Design

Conceptual Design

To verify preliminary design and engineering and confirm that the technology is feasible and the design concept has utility against stated military requirements in order to reduce technical uncertainty.

Developmental Design

Developmental design is directed toward hardware, for test or experimentation and provide for a specific design approach. In addition, the data shall be suitable for analytical evaluation of the inherent ability of the design to attain the required performance.

Level 2, Production Prototype and Limited Production

Designs that approach the final form factor, employ standard parts (or non-standard parts approved by the agency concerned), take into consideration full military requirements with respect to performance, and can support limited production of models in final form and suitable for field test, deployment and logistic support.

Level 3, Production

To provide engineering data for support of quantity production to permit competitive procurement for items substantially identical to original items. These engineering drawings reflect technical data possessing the highest level of confidence.

DATE
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